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OF THE

WEST VIRGINIA

Agricultural Experiment Station

AT

MORGANTOWN, W. VA.

Organization and Work of the Station.

JULY 1888.

JOHN A. MYERS, Director.

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ORGANIZATION AND WORK OF THE STATION.

BY JOHN. A. MYERS, DIRECTOR.

The West Virginia Agricultural Experiment Station was organized in June, 1888, by the Board of Regents of the West Virginia University accepting the Congressional Appropriation, dividing it into separate funds, electing a director, appointing suitable committees and indicating an outline of the work to be undertaken for the next year.

The Board finds itself without any buildings for the Experiment Station, without any farm for experimental work, and with no money, outside of the restricted appropriation for building purposes, with which to provide either. The Director found the Station without a staff of scientific workers and with no place to put them if he had them.

It will thus be seen that we are starting with the foundation. It need not be expected that the Station can accomplish much scientific work until we have had time to overcome the difficulties facing us.

It is hoped that the farmers of West Virginia will press the matter of agricultural education in our State so vigorously in the near future that our legislature will be constrained to provide for the promotion of a more profitable system of agriculture. The National government has been liberal to this State, and particularly to the farming classes, in its endeavors to develop agricultural interests. The question may be asked very seriously, "What has our State done to avail itself of the munificence of the General government?" To what extent has it supplemented the efforts of our National government to develop the agricultural interests of this State and to educate our farming classes? Why should not this State, as other States, receiving the land grant of 1862, make provisions that the farmers of this State, as in other States, receive the benefits of scientific work in agriculture? Why not have an experimental farm and

farmers carefully trained for the business, just as we have educated doctors, lawyers and preachers for their respective callings.

I am fully aware that popular prejudice, in some quarters, is strong against educated farmers, just as it was years ago against educated doctors and lawyers when people preferred to have nothing to do with them. It was only one hundred years ago that the innocent exposure of an arm at the window of a New York hospital led to a riot that seriously injured a number of prominent citizens; and when even the New York papers contained the following: "Are we not convinced by this time that we have among us a set of men so audacious that they venture, even in public, to wrest, turn, and twist and explain away the purport and meaning of our laws? Beware of the lawyers."

Let our farmers insist that their interests shall receive attention in our legislative halls equal to their importance, and insist that this Experiment Station be provided with land and proper facilities for successfully carrying on its work. It is for the benefit of the farmers alone, and it is their duty to watch it with a jealous eye and see to it that it is properly provided for, wisely conducted, and held strictly to the purposes for which it was organized.

If our farmers do not look after it, profit by its work, and support it, there is no class of people in the State for which it is intended, and a further continuation of the appropriation on the part of the government would scarcely be justified.

It is the desire of the Director to come into close relations with the farmers, to find what are the most pressing needs, and as far as is in his power, to concentrate the energies of the Station-workers upon those subjects. It will always be his aim to bring the scientific work of the Station into actual bearing upon the practical questions of Agriculture, trusting that the work upon such problems as are undertaken may lead to results that will prove of advantage to the farmers.

For some time, until facilities can be perfected for carrying on experimental work upon a large scale, we shall be forced to confine our bulletins to the distribution of scientific work reduced to a popular form, the matter being drawn from such sources as may be available.

THE OBJECTS OF THE EXPERIMENTAL STATION.

This is clearly given in the 2nd section of what is known as the Hatch Act; "That it shall be the object and duty of said Ex-

periment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food of domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may, in each case, be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories." From this it will be seen that the whole range of agricultural science bearing upon Agriculture may receive attention.

For the present, we shall attempt but few of these subjects.

The situation of West Virginia with respect to the Eastern markets and to the large manufacturing centers like Pittsburg and Wheeling would lead one to suppose that we could readily find a good market for anything that the farmers could produce. This may be true in most cases, but the profits in farming do not depend wholly upon the selling price of the products, though frequently our farmers figure it without any regard to the cost of production.

We find, in many sections of the State, farmers cultivating wheat and corn upon steep hill-sides by hand, trying to compete with the great West, where the crops can be grown and harvested by machinery at perhaps one-third of what it costs to produce the same here. For example, a mill owner in this town has told me that he can buy corn delivered here, free of freight at about 15 cts. less per bushel than the farmers here can possibly produce it. Under such conditions as these it would scarcely appear to be a rational undertaking to raise corn in this section, unless it can be used with the fodder produced, in such a way as to make it profitable by fattening cattle; but in this business it is doubtful whether, under the light of a careful analysis, any profit can be shown.

The sheep industry, while the price of wool is so low, is scarce-

ly a profitable business; though even at present figures perhaps one of the safest and best businesses pursued by our farmers. The fattening of hogs is not a profitable business for the reason that the corn costs so much. The raising of horses and mules should be profitable in very many cases, and I believe has generally been found to be so, where tried.

Our farmers while working hard from early to late scarcely make more than a fair living for themselves and families. Few, it is true, are in debt, but few are making much money. Why is this? My idea of farming is to make money by the business, and thereby accumulate property without impoverishing the land, as is done in most purely agricultural countries.

Taking everything into consideration, we know of nothing that offers more advantages to those farmers who are within reach of our railroads than does the dairy business, and the first effort of the Station will be to develop this industry in the State, believing, as we do, that it offers a more profitable business and a safer one, than anything the farmers of the State are engaged in, or can engage in. This is naturally a dairy country, and it is simply following the line nature has marked out for us in adopting this business. The dairy will constitute the entering wedge of our work. With farmers engaged in the dairy business, it is not long until the questions of food stuff, and all the complicated problems connected with it, arise; such as grasses best adapted to the country, preservation of forage and grain crops, ensilage, silos, economic feeding, scientific feeding of stock for butter, milk and meat; the economic questions connected with the raising of cattle, improved and thorough bred cattle, diseases of stock, covering the whole range of veterinary science; improvement of land, preservation of pasture and rotation of crops, together with the study of the diseases of the crops, their enemies and best means of protection.

We are fully aware that it may take several years to accomplish much and that we may be met by the impatience of inexperience, and charges of various kinds, but we are very sure we are upon the right foundation upon which to build experimental work in this State.

The most serious question in our mind is, whether the farmers of the State will take enough interest in the work and assist to a sufficient extent to make the Station a success. We ask them to help us, to study our work, to profit by our failures and to take advantage of our successes, and we promise to leave no ef-

fort untried to make The Experiment Station a blessing to the farming interests of the State.

We propose to press the development of the dairy interest in this State with as much earnestness as possible. Besides offering the advantages that it does as an entering wedge for our experimental work, it has the advantage of every other operation upon the farm, when looked at from a money-making stand point. In all other farm enterprises, the farmer must wait from six months to a year or more before he receives any dividend from his investment. In the case of wheat, corn, or other crops, the farmer must run the risk of a half dozen accidents, as drouth, frost, rust, insects, etc., and take the chances of a low market when the harvest has come. His capital, his labor, his hopes are all staked upon the chances of his crop escaping the enemies, and prices not being depressed by the whims of the "Bears" of the Chicago Exchange.

This is not the case in the dairy business. In it the farmer begins to collect his dividends the next month after he invests his capital and labor, and his money comes in regularly as long as he keeps his cows in milk and takes proper care of them.

One of the most serious troubles with our farmers, is, that they rarely know the cost of anything produced upon their farms. Many whom this bulletin may reach, may be disposed to say, "Ah! the dairy business is a little business. I let my wife and the girls have what they can make off of our cows." That is, in a measure, true. We will suppose that he keeps five cows the year around. Has he ever calculated the influence this "little business" of "his wife and girls" has upon the home? When we think of it, is it not a fact that from the proceeds of those five cows, his wife buys three-fourths of his groceries, clothes the small children, buys all the better clothing for herself and the girls, and occasionally, when he is "in a pinch" loans him a dollar or so to help him out? Yes, it is a "little business," but as his wife and the girls carry it on they make it pay more than the half of his farm is now paying. That "little business" with the five cows has supplied him with groceries, kept him in milk and butter, raised enough meat to more than half supply his family, bought the larger share of the clothes for the family and met a dozen other little wants of which he knew nothing. Is it a "little business?" What do those cows pay? Who will answer? Who has the figures? If you do not have the figures, it may be well to consider the following: An average cow in this

country should produce not less than 200 lbs. of butter a year, which, at 20 cts. is $40.00; and the skimmed milk left unaccounted for. Where farmers patronize Creameries as they should do, this is less than the mininum price at which the butter is sold. You can buy the cow for from $30 to $40.00. Let the skimmed milk and manure pay the expense of keeping her and you have a net profit of how much? How many such cows does it take to make more money than the whole farm is now paying? Why is it that all over the United States those sections engaged in the dairy business are in the most prosperous condition, the farmers out of debt, living in ease and elegance, with money to loan, and time to enjoy themselves as other men do? Is it not due to the regular and never failing supplies of cash that is distributed every week in those sections? In this business, the farmer has something at hand all of the time to convert into money.

In pressing this matter to the attention of our farmers, we believe we are laying the foundation for a much greater agricultural prosperity in our State, and those farmers who will profit by the experience elsewhere in this business, will find it more profitable to engage in the dairy business than anything else, outside of restricted sections, such as the river bottoms near Wheeling, etc., where, of course, truck gardening will pay best.

We are very sure of the foundation upon which we are trying to build up the experimental work of the station, and as the scheme is perfected and facilities for carrying it out are placed in our hands, we have not the slighest doubt that our farmers will get a greater benefit from the Experiment Station than by any other plan that could be adopted.

We ask the farmers of the State, the State Grange, the Co-operative associations and Live-stock associations in the State to give us their hearty support; to correspond with us, giving their experience and advice. We will make it our business to attend their meetings, as far as possible and trust that they will correspond with us in regard to all matters of importance connected with tbe development of the State. Everything that we can do will be done absolutely free of cost to them.

We likewise ask the support of all patriotic and enterprising citizens in the State and trust that all of the various interests of commerce and manfactures may give us their influence for building up the wealth of our farmers, as this is, and must al-

ways be, the foundation of our prosperity. Give us your helping hand, and in helping the development of our agricultural interests you help yourselves. It must all come back to you in increased trade and larger supplies of raw materials and the necessaries of life.

We also appeal to the press of the State to give us its powerful arm. With a kind support from it, we have no fear of failure. We ask all of our State papers to help us to keep the work of the Station before the farmers. We cannot reach this class of our citizens except by persistent and continual effort and the press must always be the lever by which they are moved. It is an enterprising press which, more than anything else, continually calling attention to the advantages of the country has built up the great West. The influence is so powerful that our young men—the cream of the country—as fast as they become of age, move West, leaving a country which is, in many respects better, and in few, as bad as a new country to which they go; but the influence of the press inspires a faith in better things and off they go, frequently without money to get back and they are forced to remain. Let our State press give us its hand to help put a stop to this draining of our country of its life-blood and try to build up our interests at home. Will our editors give us their help and second every effort, however feeble, to develop a larger prosperity in our State?

We ask the patience of the public. It is not a small undertaking to organize an Experimental Station under any circumstances; but it becomes doubly difficult when we are lacking many of the most essential conditions to success. It will take time to supply what is wanting, and our work must not be judged by the same standard, as it should be, had we a complete organization and a trained force of scientific workers provided with all of the facilities for carrying on their work.

In order to secure a complete list of the farmers of the State to whom we desire to send all of our Bulletins free, we shall address every postmaster in the State, requesting them to send us a list of the farmers receiving their mail at their respective offices. In this way, we hope to receive the addresses of from 8,000 to 10,000 of our farmers, but there will be many post-masters who will probably not reply to our request, and any citizen desiring to have our publications sent to him as they appear, will secure them by sending us his address.

The Director will be especially glad to meet the farmers in

their conventions, and we hope that our friends will notify us of the time and place of their meetings and the Station will always endeavor to have a representative present to take part.

There is one caution that we desire to throw out at the beginning of our work, and that is that our Station Laboratory is not intended as an advertising medium for mineral springs, minerals or mining schemes. All specimens sent in for examination will be held until such time as we can attend to the work economically with other work of the same kind. All samples received here, which upon their face bear evidence of an attempt to secure private profit at public expense, will not receive attention. Our Laboratories will be equipped for the special kind of work contemplated in the law, and we hope that this will be carefully noted and remembered.

We will test any kind of seeds as to purity and germinating power; examine soils, grasses, fodders, feed-stuffs, weeds, insects, insect powders, fertilizers, moulds, fungi; investigate prevailing diseases among animals and plants; experiment on adaptability of various species of grains, fruits, grasses and forage crops; assist in organizing Creameries and give instruction in dairy practice, and in the art of dehorning cattle. We will make milk tests of cattle where public benefit is derived from the same and will give instruction in any of the methods employed at the Station, free of charge. We will supply the farmers with plans for building creameries and equipping same; give plans for building silos. As soon as our organization can be perfected, we hope to be able to carry on with our work of a popular character, scientific investigations that may contribute original matter for the advancement of our knowledge of Agricultural subjects.

We have not the slightest doubt that we can make the Experiment Station of lasting benefit to the farmers of our State upon the plan of work outlined, and ask all to have patience and give the authorities of the Station time to overcome the difficulties presenting themselves at its very organization. Buildings can not be erected, lands secured, experiments inaugurated and completed, scientific workers selected and employed, and all of the many perplexing problems connected with organization and equipment solved, in a few days. It will take time, patience, forbearance and encouragement together with material aid, to accomplish the work. Will our farmers, our patriotic citizens, our legislators, and above all, the press of the State, give us that support that we require to make our work a success?

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges, or agricultural department of colleges, in each State or Territory established, or which may hereafter be established, in accordanc with the provisions of an act approved July 2, 1862, entitled, "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "Agricultural Experiment Station;" *Provided*, That in any State or Territory in which two said colleges have been or may be so established the appropriation hereinafter made to such State or Territory shall be equally divided between such colleges, unless the legislature of such State or Territory shall otherwise direct.

Sec. 2. That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotating cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of

different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

Sec. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said Stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate, from time time, such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will best promote the purposes of this act. It shall be the duty of each of said Stations, annually, on or before the first day of February, to make to the Governor of the State or Territory in which it is located, a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said Stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

Sec. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the Station will permit. Such bulletins or reports and the annual reports of said Stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

Sec. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results, as hereinbefore prescribed, the sum of fifteen thousand dollars per annum is hereby appropriated to each State, to be especially provided for by Congress in the appropriations from year to year, and to each Territory entitled under the provisions of section eight of this act, out of any money in the Treasury proceeding from the sales of public lands, to be

paid in quarterly payments, on the first day of January, April, July and October in each year, to the treasurer or other officer duly appointed by the governing boards of said college to receive the same, the first payment to be made on the first day of October eighteen hundred and eighty-seven; *Provided, however*, That out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended.

Sec. 6. That whenever it shall appear to the Secretary of the Treasury, from the annual statement of receipts and expenditures of any of said stations, that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any stasion shall not exceed the amount actually and necessarily required for its maintenance and support.

Sec. 7. That nothing in this act shall be construed to impair or modify the legal relation existing between any of the said colleges and the government of the States and Territories in which they are respectively located.

Sec. 8. That in States having colleges entitled under this section to the benefits of this act, and having also agricultural experiment stations established by law, separate from said colleges, such States shall be authorized to apply such benefits to experiments at stations so established by such States; and in case any State shall have established, under the provisions of said act of July 2d aforesaid, an agricultural department or experimental station, in connection with any university, college, or institution not distinctively an agricultural college or school, and such State shall have established or shall hereafter establish a separate agricultural college or school, which shall have connected therewith an experimental farm or station, the legislature may apply, in whole or in part, the appropriation by this act made to such separate agricultural college or school; and no legislature shall by contract express or implied disable itself from so doing.

Sec. 9. That the grants of money authorized by this act are made subject to the legislative assents of the several States and Territories to the purposes of said grants: *Provided*, that pay-

ments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its legislature meeting next after the passage of this act, shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

Sec. 10. Nothing in this act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all States or institutions mentioned in this act, but Congress may at any time amend, suspend, or repeal any or all of the provisions of this act."

Under the provisions of this act, the Agricultural Experiment Station for West Virginia is located at Morgantown, in connection with the State University which received the proceeds of the "land grant" under the act of Congress of July 2d, 1882.